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-- I2C_Enable
-- version 3 12/10/2002
-- ENABLE ONE SET OF i2c PINS AT A TIME
library IEEE;
use ieee.std_logic_1164.all;
use ieee.std_logic_unsigned.all;
use ieee.std_logic_arith.all;
library synplify;
use synplify.attributes.all;

entity I2C_Enable is port
(
  -- I2C_connections
  SCL_O      : in std_logic;
  SCL_OEN    : in std_logic;
  SDA_O      : in std_logic;
  SDA_OEN    : in std_logic;

  -- controls
  I2C_EnableX : in std_logic_vector(6 downto 0);

  -- Pad/Pin connections
  TXD1       : inout std_logic;
  --RXD1       : in std_logic;
  TXCLK1     : out std_logic;

  TXD2       : inout std_logic;
  --RXD2       : in std_logic;
  TXCLK2     : out std_logic;

  TXD3       : inout std_logic;
  --RXD3       : in std_logic;
  TXCLK3     : out std_logic;

  TXD4       : inout std_logic;
  --RXD4       : in std_logic;
  TXCLK4     : out std_logic;

  TXD5       : inout std_logic;
  --RXD5       : in std_logic;
  TXCLK5     : out std_logic;

  TXD6       : inout std_logic;
  --RXD6       : in std_logic;
  TXCLK6     : out std_logic;

  TXD7       : inout std_logic;
  --RXD7       : in std_logic;
  TXCLK7     : out std_logic;

  -- I2C_connection
  SDA_I      : out std_logic);
-----  
end I2C_Enable;  
  
architecture rtl of I2C_Enable is
attribute syn_radhardlevel of rtl : architecture is "tmr";
begin
  -- fsm register
  TXD1 <= SDA_O WHEN (SDA_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0000001") ELSE 'Z';
  TXD2 <= SDA_O WHEN (SDA_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0000010") ELSE 'Z';
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TXD3 <= SDA_O WHEN (SDA_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0000100") ELSE 'Z';
TXD4 <= SDA_O WHEN (SDA_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0001000") ELSE 'Z';
TXD5 <= SDA_O WHEN (SDA_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0010000") ELSE 'Z';
TXD6 <= SDA_O WHEN (SDA_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0100000") ELSE 'Z';
TXD7 <= SDA_O WHEN (SDA_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "1000000") ELSE 'Z';

TXCLK1 <= SCL_O WHEN (SCL_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0000001") ELSE '1';
TXCLK2 <= SCL_O WHEN (SCL_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0000010") ELSE '1';
TXCLK3 <= SCL_O WHEN (SCL_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0000100") ELSE '1';
TXCLK4 <= SCL_O WHEN (SCL_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0001000") ELSE '1';
TXCLK5 <= SCL_O WHEN (SCL_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0010000") ELSE '1';
TXCLK6 <= SCL_O WHEN (SCL_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "0100000") ELSE '1';
TXCLK7 <= SCL_O WHEN (SCL_OEN = '0' AND I2C_EnableX(6 DOWNTO 0) = "1000000") ELSE '1';

SDA_I <= TXD1 when I2C_EnableX(6 DOWNTO 0) = "0000001" else
  TXD2 when I2C_EnableX(6 DOWNTO 0) = "0000010" else
  TXD3 when I2C_EnableX(6 DOWNTO 0) = "0000100" else
  TXD4 when I2C_EnableX(6 DOWNTO 0) = "0001000" else
  TXD5 when I2C_EnableX(6 DOWNTO 0) = "0010000" else
  TXD6 when I2C_EnableX(6 DOWNTO 0) = "0100000" else
  TXD7 when I2C_EnableX(6 DOWNTO 0) = "1000000" else
  '1';

end rtl;
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